

Division of Wildlife Refuges

Narrative Report Routing Slip

Refuge TAMARAC

Year 1964

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TAMARAC NATIONAL WILDLIFE REFUGE

NARRATIVE REPORT

1964

U.S. DEPARTMENT OF THE INTERIOR

BUREAU OF SPORT FISHERIES AND WILDLIFE

ROCHERT, MINNESOTA

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# I. GENERAL

## A. Weather Conditions

	Month	<u>Precipitation</u>		Max. <u>Temp.</u>	Min. <u>Temp.</u>
		<u>Normal</u>	<u>Snowfall</u>		
January	<u>.62</u>	<u>.71</u>	<u>7.00</u>	<u>41</u>	<u>-27</u>
February	<u>.07</u>	<u>.68</u>	<u>2.25</u>	<u>43</u>	<u>-17</u>
March	<u>1.01</u>	<u>.99</u>	<u>8.00</u>	<u>49</u>	<u>-16</u>
April	<u>2.88</u>	<u>2.02</u>	<u>12.00</u>	<u>75</u>	<u>11</u>
May	<u>2.74</u>	<u>2.99</u>	<u>      </u>	<u>93</u>	<u>31</u>
June	<u>4.63</u>	<u>3.79</u>	<u>      </u>	<u>89</u>	<u>26</u>
July	<u>6.21</u>	<u>3.58</u>	<u>      </u>	<u>92</u>	<u>43</u>
August	<u>2.87</u>	<u>3.75</u>	<u>      </u>	<u>91</u>	<u>32</u>
September	<u>4.32</u>	<u>1.96</u>	<u>      </u>	<u>84</u>	<u>28</u>
October	<u>.28</u>	<u>1.37</u>	<u>      </u>	<u>76</u>	<u>17</u>
November	<u>.53</u>	<u>3.00</u>	<u>6.50</u>	<u>63</u>	<u>-28</u>
December	<u>1.26</u>	<u>.75</u>	<u>20.50</u>	<u>31</u>	<u>-31</u>
Annual Totals	<u>27.42</u>	<u>25.59</u>	<u>56.25</u> Extremes	<u>93</u>	<u>-31</u>

The weather was somewhat milder during the first third of the year than it was for the corresponding period last year. Snowfall (29.25") was 14.25" more than last year and contained more moisture; 6.39"/inch precipitation as opposed to 13"/in. precipitation.

On April 13th, we received .79" of rain preceded by two days above 60 degrees. On the 14th, 8" (.60" precipitation) of snow fell, accompanied by strong winds. Drifts were 6 - 10 feet deep in places and many roads were blocked until late the following afternoon. This was the only time roads were blocked all winter. The snowstorm was followed by a 60 degree and a 75 degree day.

The weather during this particular six day period contributed substantially in filling the potholes and marshes.

Breakup in the spring was about three weeks later than normal.

Precipitation was .25" less than normal for May and only .63" was received between May 8th and June 5th. Precipitation for June, July, and August was above normal. Excessive rains in July and frequent rains in August held up field work considerably at times. A late frost in June (June 10th) set back some of the crops. An early frost on August 13th was spotty but did kill some buckwheat and may have contributed to the lack of development of the wild rice crop.

Precipitation in September was 2.56" above normal but total precipitation for the September - December period was .69" below normal. Only traces of rain fell between October 4th and November 10th, which created a fire hazard but no fires resulted.

The first snow fell on November 27th. The total snowfall for the fall period was 27" and contained only 1.33" of precipitation (20.3" snow/inch precipitation).

Temperatures were very cold during December with maximum temperature below zero for five days and minimum temperature of zero or below for 19 days.

Total precipitation for the year (27.42") was 1.87" above normal.

#### B. HABITAT CONDITIONS

##### 1. Water

Water conditions were good all year. Potholes had more water and more of the smaller and shallower potholes contained water than any spring since the mated pair count on potholes was set up five years ago.

Elevation readings on lakes with controls were as follows:

	<u>Chippewa</u>	<u>Flat</u>	<u>Two Island</u>
Jan.	1461.35 (ice)	1468.40 (ice)	1484.40 (ice)
Feb.	1461.35 (ice)	1468.40 (ice)	1484.40 (ice)
Mar.	1461.35 (ice)	1468.40 (ice)	1484.40 (ice)
April	1461.89	1468.92	1484.35
May	1461.56	1469.38	1484.53
June	1461.30	1468.94	1484.22
July	1461.34	1468.68	1483.74
Aug.	1461.30	1468.59	1483.69
Sept.	1461.50	1468.81	1484.10
Oct.	1461.64	1468.95	1484.20
Nov.	1461.58 (ice)	1468.95 (ice)	1485.20 (ice)
Dec.	1461.58 (ice)	1468.95 (ice)	1485.20 (ice)
Approved Level	1461.00	1467.50	1484.00

Beaver dammed the Dry Lake control with the result that the water levels are held at, or slightly above, the approved level.

Chippewa Lake varied from .00' to 1.30' above the approved level through the year. We try to maintain the water level at the approved level, or slightly above, during the growing season with a rise of six inches or so just before wild rice harvest.

The Flat Lake control is not adequate to lower the water level rapidly for such a large area. The water level varied from .90' to 2.30' above the approved level.

The water level at Two Island varied from .55' below the approved level to 1.20' above. The low level was a result of beaver dams upstream which were holding back water. Beaver dams at the control were removed several times also.

Water levels on lakes without controls were adequate throughout the year and above last year's levels.

Streams continued to flow throughout the summer. The Ottertail River was checked at Franklin bridge and the Indian Graves crossing on August 19th and found to be much too low for canoeing. This is the normal summer condition of the Ottertail.

## 2. Food and Cover

Waterfowl used the refuge-farmed grain fields heavily in the spring, especially the Flat Lake and Headquarters fields.

No grain was harvested from these fields last year and there was still a lot of buckwheat, wheat, barley, and corn available in the spring.



Wild rice and submerged aquatics were also used.

Throughout the summer, aquatic food was sufficient, but the wild rice harvest was very poor. The refuge was flown on August 13th and the acreage of wild rice was found to be equal to that of 1963. The low yield apparently resulted from prolonged cool, wet weather in August (plus a severe, unseasonable frost on August 13th) which affected the plants in the flowering and pollinating stage.

Buckwheat, sweet corn, and fall rye fields were utilized daily by 4 - 5,000 mallards and several hundred wood ducks, along with over 400 Canada geese and up to 30 deer.

A daily flight pattern (morning and evening) of 100 - 200 Canada geese was confirmed between the south Flat Lake fields and the Chippewa grain fields. Flocks of geese were also observed on the Melander (west side of Flat Lake) and the winter wheat fields south of the headquarters entrance.

This year we planted 39 acres of buckwheat, 9 acres of sweet corn, 4 acres of field corn, 34 acres of oats and alfalfa (25 acres later plowed down), 30 acres of millet and alfalfa, 45 acres of winter wheat, and 9 acres of fall rye.

18 acres of winter wheat were plowed down; too much quack.

9 acres of buckwheat were also plowed down. This field on the west side of Chippewa froze out on August 13th.

The oat and alfalfa field that was plowed down was later planted to millet and alfalfa.

We tried sweet corn this year after hearing that Rice Lake had good luck with it. It produced well.

Field corn planted east of the Chippewa goose pen developed very short stalks, and ears were likewise short; however, it is estimated that production may have amounted to 25 bushels per acre. Also, the corn rows grew heavy yields of volunteer buckwheat and millet, which had been grown the previous year, and had not been harvested.

The buckwheat field at Chippewa that froze out was re-planted to fall rye.

A 5 acre piece of the headquarters field was put into permanent grass to help control an erosion problem.

A small knoll northeast of headquarters and Flat Lake fields was cleared of trees (last winter) and planted to Dutch white clover this summer. Also, several knolls in the new Flat Lake fields were planted to Dutch white clover. Goose use is already evident.

All of the refuge-farmed grain, with the exception of 11.2 acres of winter wheat harvested for seed, was left in the fields.

Permittee-farmed land on the refuge included the following crops and acreages:

Oats - 20, 22, 18, 43, 15, 18 = 136 acres

Barley - 12, 14 = 26 acres

Corn - 12, 10 = 22 acres

Yields were only fair. One field of barley (Ray Hanson's on the Leon Hanson place) failed and was cut for hay.

One field of corn (Earl Murray) was cut for silage. The refuge received a share of oats instead of the corn.

## II. WILDLIFE

### A. MIGRATORY BIRDS

The spring migrants started stopping in at the end of March. Migration continued to increase until the end of April when about 13,000 ducks and 1,800 coot were on the refuge.

Canada goose populations reached a peak of about 100 in April and remained constant throughout the period. Many flocks were seen flying over and many others stopped for several days.

Goose use days were down slightly from last year, 4,100 vs. 4,405. Duck use days were less than half as many as last year, 150,000 vs. 324,000. Coot use days more than doubled this year, 16,100 vs. 7,770 in 1963.

Use days by all waterfowl were lower than in 1963 due to abnormally late opening of lakes, ditches, and ponds. (3 weeks late)

During the last week in January, <sup>42</sup>38 three-year-old geese were sexed and the clipped wing feathers stubs pulled in order to ready them for release in the spring.

By the end of April, 16 pairs were nesting in the pens and at least 25 mated pairs were nesting in the marshes, channels, and potholes surrounding the pens. A third to one-half of the known nests were occupied by birds returning with the migration.

Several observations were made of geese resting on platforms outside the pens but none were observed nesting on them. A survey of the platforms for nesting geese was not made.

Raised nesting platforms and mounds were used extensively by nesting geese in the pens where they had a choice of nesting sites.

Thirty roofs were placed on platforms in the marshes. This may add to their attractability and be an additional protection from predatory crows, eagles, and owls. Platforms in the pens with roofs are used before those without.

Goose production was 70 - 100. Thirty-nine (39) of these were produced from eight nests in the pens. The other eight nests in the pens were abandoned or destroyed.

There were four cases where a goose nesting outside the pens brought her brood to the fence and acted like she wanted in. They were let in in all four cases.

Broods ranged in size from 1 to 7 and averaged 5.5.

On July 13th, 48 goslings and one mated pair were picked up at the Strutz farm in Jamestown, North Dakota. They were wing clipped and placed in the holding pen on Flat Lake. As in the past, these birds will be wing clipped, retained in the holding pens, and released in the spring of 1967.

On the basis of mated pair counts made in May, we estimate that duck production was down about 30 percent. The 1964 production was 9,021 compared to 13,683 in 1963.

Estimated production of the four more abundant species is as follows:

	<u>1963</u>	<u>1964</u>
Mallard	4,710	3,015
Wood duck	3,699	3,108
Blue wing teal	3,459	2,340
Ringneck	1,815	558

PAIRS OF NESTING DUCKS

<u>Species</u>	<u>Potholes (1)</u>	<u>Rivers (2)</u>	<u>Ditches (3)</u>	<u>Lakes (4)</u>	<u>Marshes (5)</u>	<u>Lakes (6)</u>	<u>Marshes (7)</u>	<u>Total (8)</u>	<u>Production (9)</u>
Mallard	595	73	21	277	138	211	105	1104 (a) 1005 (b)	3312 (a) 3015 (b)
Blue-wing	482	58	64	154	76	117	59	-834 780	2502 2340
Wood duck	592	37	114	257	128	195	98	1128 1036	3384 3108
Ringneck	113	9	14	44	23	34	16	203 186	609 558
Goldeneye	14	4	0	0	0	0	0	18	54
Coot	0	2	0	0	0	0	0	2	6

Notes:

(1) 146 potholes were checked three times each during May; 141 were usable; 61 had ducks on them during one of the three checks. We estimated there were 2,000 usable potholes on the refuge this year and proportionally 865 had ducks on them.

(2) Approximately 8 miles of river were surveyed and production was computed on the basis of 14 miles of river through the refuge.

(3) About 196 chains of the approximately 1,400 chains of level ditching were surveyed.

(4) Seven lakes were surveyed and the results to cover the 24 lakes on the refuge.

(5) Again as in the past, marsh production was based on one-half that of the lakes.



(6) This is a new method of computing lake production. The shoreline of the same 7 lakes as noted in (4) was computed and the count was projected to the total shoreline of the 24 lakes. The shoreline was taken from the Master Plan.

(7) This marsh production was based on one-half that of the lakes in (6).

(8) (a) Total of 1,2,3,4, and 5, i.e. the old way.

(b) Total of 1,2,3,6, and 7, i.e. the new way.

(9) (a) The production based on the total number of pairs in 1, 2, 3, 4, and 5, i.e. the old way.

(b) The production based on the total number of pairs in 1, 2, 3, 4, 6, and 7.

The new method of computing production may be better because it gives weight to the amount of shoreline. The old way gave equal weight to all lakes regardless of size.

Production is based on 50 percent nesting success and an average of 6 young per brood raised to flight stage.

Bird banding operations were in progress throughout the summer. The student assistant, Michael Petitpren, is responsible for the record success of the program this year. Duck banding was carried out until the opening of the waterfowl season.

#### BANDING RESULTS 1964

	Adults		Immatures		Locals		Total
	M	F	M	F	M	F	
Mallard	37	65	39	61	32	20	254
Blue wing teal	1						1
Wood duck	136	110	42	37	5	6	336
Ringneck	2	1		2			5
Green wing teal	1						1
Widgeon		1					1
Total	177	177	81	100	37	26	598

This is a substantial increase over the total of 388 for 1963, 180 for 1962, and 28 for 1961.

Mike also more than tripled 1963's mourning dove banding with a total of 28 birds.

Two wood duck roosts were located. One on the southeast shore of South Chippewa lake and the other on the east shore of Johnson Lake. These will be checked in order to determine feasibility of trapping.

During the fall migration, we had as many as 450 Canada geese using the refuge grain fields. This is about 150 less than the peak a year ago but the total goose use days is more than last year (24,175 vs. 22,755).

The noticable buildup started about the end of September. Prior to that time there were about 150 free flying refuge raised geese using the refuge fields. The flock averaged about 300 birds until the end of November. There was a daily flight (morning and evening) of 100 - 200 Canada geese between the south Flat Lake fields and the Chippewa fields. Flocks of geese also used the Melander (west side of Flat Lake) fields and the winter wheat fields south of the headquarters entrance.

From the first part of December until the present, 61 free flying geese have remained. This indicates that about 90 refuge reared geese went south with the migration.

The next report will indicate 109 free flying birds on the refuge in the spring before migration. This flock will be composed of the 61 birds which did not go south plus 48 three year old birds which will be released in the spring (feather stubs pulled in January 1965).

A flock of 50 snow and blue geese stopped in for a week in October.

A flock of 50 whistling swans stopped in for about a week in October and another flock of 30 was here during the third week of November. Last year, we had a flock of 30 which stayed for two days in November and that was the first recorded flock since April of 1961.

During the week of October 20 - 26 there were about 40,000 ducks using the refuge. The peak population was 138,000 last year. Total duck-use days were 947,160 compared to 3,077,200 last year.

This decrease was probably a result of warm weather which prevailed in northern Minnesota and Canada and allowed the ducks to remain farther north for a longer period than normal. This is also verified by the fact that our peak population occurred three weeks later than last year. The buildup also started earlier last year.

However, there was an increase in wood duck days use from last year (53,370 vs. 33,250). The major species which were down from last year were: Mallards (357,550 vs. 815,010), Baldpate (9,170 vs. 47,400), Ringneck (119,525 vs. 602,350), Scaup (126,175 vs. 353,920), unknown (246,400 vs. 1,434,450), and blue winged teal (29,505 vs. 73,465).

There were up to 10,000 mallards feeding on the Chippewa grain fields during the fourth week of September besides 4,000 - 5,000 mallards and wood ducks on Flat Lake fields.

The peak coot population was 30,000 vs. 57,000 last year and total use days were down also (544,810 vs. 1,027,005).

#### B. UPLAND GAME BIRDS

Ruffed grouse are at a low. Only two drummings were heard this year on the same route used last year when five drummings were heard. Fall observations indicate that the population is up from last year. Observations also indicate that the population density is the same in the lower one-third of the refuge which is open to hunting as it is in the area closed to hunting.

Pheasants continue to remain at a low level. They are observed most frequently near the grain fields around the headquarters area.

Eight Hungarian partridge were seen feeding in the goose pens on March 9th. This was a rare occurrence on the refuge.

Apparently the wild turkeys have vanished from the refuge as none have been seen for the past four or five years.

#### C. BIG GAME ANIMALS

The deer came through the winter in fair shape. Weather conditions were not too bad for them. Snow accumulation was not too great and hard crusting did not occur. Tracks indicated free movement throughout the refuge and no yarding was observed.

On March 5th, pilot-biologist John Winship and refuge personnel made an aerial census of the refuge. There were many bare spots on the ground and only 35 deer were counted. This figure was projected to 182 animals on the refuge. Based on deer checking data the population was 938 deer.

Observations during the spring and summer indicated a good fawn crop.

The following table shows how the population was estimated.

	Male	Female	
12/31/63	438	500	938 total m/f 87.6/100
	207	116	Fawn crop based on 1964
			fawn total ratio 34.6/100
	645	616	+ 64/36 m/f ratio among fawns
			Pre-hunting population
12/31/64	532	536	1068 total - m/f 99.3/100

December observations indicate an abundant deer population ranging freely throughout the refuge. The snow is about a foot deep but very light.

Annual hunting removal for the past 5 - 6 years has averaged 207 animals. It is our belief that this annual removal figure approximates the average annual increment. At the present rate of reproduction and removal we are still observing considerable damage to coniferous reproduction. Annual controlled hunting seasons appear advisable until such time as the herd condition would require extra protection.

There were three observations of bear made during the summer by refuge personnel.

We feel that from a public relations standpoint it would be wise to allow bear to be taken during the deer season. We have requested this in 1962, 1963, and 1964 but permission has not been printed in the Federal Register.

Two observations of moose on the refuge were reported by local residents in May.

#### D. FUR ANIMALS, PREDATORS, RODENTS, AND OTHER MAMMALS

Beaver continue to be a mixed blessing. In many cases they plug culverts and control structures. In other cases they are producing better habitat for waterfowl by maintaining higher water levels.

There were 30 beaver removed during the state season this spring by permittee trappers. 4 others were removed by refuge personnel after the season. These were plugging culverts at Chippewa. The pelts were turned over to State warden Ted Abrahamson. No portion of the sale price was returned to the refuge as a pelting fee.

During the fall several of our permittee trappers were given state permits to trap beaver and 33 beaver were taken.

The following furbearers were removed by permittee trappers during the year:

	Spring	Fall	Total
Muskrat		94	94
Beaver	35	33	68
Mink		4	4
Weasel		6	6

The refuge share of the mink (2), muskrats (47), and weasels (3) was one-half the pelts. The pelts were shipped to Hudson Bay Company, New York, New York on January 8, 1965.

The mink population seems to be down somewhat this year. The muskrat population is fair but the price is quite low (about \$.80 a pelt).

During the course of the year the following animals were trapped or shot by refuge personnel and permittees:

Raccoon	84
Skunk	21
Porcupine	49
Fox	9
Coyotes (brush wolves)	4
Bobcats	4
Other	18

One permittee weighed the 9 coon he trapped. The weight of the females ranged from  $7\frac{1}{2}$  to  $14\frac{1}{2}$  pounds and the males ranged from  $14\frac{1}{2}$  to 21 pounds. Two female coyotes weighed 23 and  $24\frac{1}{2}$  pounds and two males weighed  $29\frac{1}{2}$  and 35 pounds. Two female bobcats weighed 9 and 23 pounds and one male weighed 33 pounds.

A large timber wolf was observed by two refuge personnel on March 17 walking on the ice on Little Rice Lake.

The greater share of the raccoon and skunk were trapped near the goose pens at headquarters and Chippewa by the student assistant.

One badger was found car killed about one-half mile east of headquarters in October.

Otter tracks are commonly seen along the Ottertail River from Blackbird Lake north to Round Lake. Two big otter were seen on the river in December.



Snowshoe hares and cotton tail rabbits are very scarce. They seem to be in the low part of their "cycle". There is a small concentration of hares in the black spruce swamp on the north side of Little Flat Lake.

#### E. HAWKS, EAGLES, OWLS, CROWS, RAVENS, AND MAGPIES

Marsh and red-tailed hawks are the species most commonly observed. Broad-winged, red-shouldered, Coopers, and sparrow hawks are seen in lesser numbers.

One bald eagle was observed in January feeding at the fish trap (Minnesota Fisheries) at the culverts on Egg River on the Egg Lake trail. Two have been feeding daily at the same site this fall through December 31st.

There are three known eagle nests on the refuge. One, located a mile west of headquarters and north of County road 26, produced three young (same as last year). A second nest, on the southwest shore of Upper Egg Lake appeared active although no eaglets were observed. The third nest, north of the Indian Service Road between Carmine and Two Island Lakes, appeared to be abandoned.

During the summer, observations were made of bald eagles over Big Flat, Pine, and Upper Egg Lakes.

Golden eagles were seen chasing geese at the headquarters area and chasing ducks on Lower Chippewa and Squaw Lakes in September, October, and November.

One bald eagle was seen attacking on a raft of ducks on Egg Lake on August 23rd.

Three geese were taken by Great Horned Owls during January and February. Two owls were shot at that time and one was taken in a jump trap this fall. No geese were known to be lost to owls this fall.

Crows were numerous and fed heavily on the discarded rough fish at the fish trap locations in March and April. The population density was quite low after this brief period in the spring.

A few magpies started showing up late in the summer and early fall. The influx was never very great and only a very few were observed in December.

#### F. OTHER BIRDS

As many as 200 Herring gulls were seen on Tamarac Lake during the spring breakup.

Two turkey vultures were seen near Dry Lake on April 27th. The student assistant observed seven perched in a single tree on the shore of Upper Egg Lake during the summer.

Killdeer were seen daily in the cultivated fields.

Fifteen white pelicans were sighted flying west-northwest over Tamarac Lake on May 18th.

Loon are commonly seen on all refuge lakes. Tamarac and Pine Lakes have the largest concentration. Eleven were seen near the east side picnic area on Tamarac on June 28th and on July 3rd.

Ten American goldfinches were observed at Wright's place on Tamarac Lake on June 18th. Observations were periodic on "winter finch" which, according to Refuge Manager Alexander, are considered a non-migrating form of the common goldfinch.

Osprey were observed near Big Flat and Pine Lakes on a number of occasions during the summer.

On August 30th, the student assistant observed a migration of two - three hundred night hawks flying west in scattered numbers.

Twenty or thirty Bohemian wax-wings fed on the Eastern red cedar berries at headquarters for several days the latter part of November.

#### G. FISH

There were up to 18 fish houses on Tamarac Lake in January and February and again this December. Success was fair. All the fish checked were northern pike, mostly in the two - five pound range. One limit of three northerns speared in an hour's time weighed 16 pounds but this was very exceptional success.

The bridges across the Ottertail River at Mitchell Dam and Chippewa are very popular places for the local people and tourists to fish during the spring and summer. Casting for northerns is most popular and success is quite good. A few walleyes and panfish are also caught. A few of the locals have very good success casting for northerns at Chippewa bridge well into November.

Bass fishing at Pine Lake was not as good as last year but the reason for this is not known. It is possible that the tremendous number of 2 - 3 pound bass caught during the preceding "fabulous" season did remove the "cream" and fishing has now come down to normal.

Trapping by the State was very successful in the spring and the larger fish were thrown back for the sportsman.

Tamarac Lake is not fished very heavily during the summer. Success is moderate on northerns and a few small walleyes are caught. The State opened it to promiscuous fishing late in the winter because of low oxygen content but there was no evidence of winter kill in the spring.

Wauboose and Lost Lakes were opened for fishing on June 6th (bass season opening). Success was not too good on Lost but a few northerns were taken. Crappie and northern fishing on Wauboose was good and a few walleyes were also taken. On one occasion a couple of bass were caught.

The State has been trapping and seining bass from Pine Lake for two years now and have taken a total of half a million thus far. They took 264,296 (4,130 lbs.) during 1964.

They have also had fish traps at the Flat Lake control, Two Island control, Upper Egg stream inlet, and the culverts in Egg River on the cabin trail. These traps are operated as a rescue operation for northern pike due to the normal heavy winter kill in the shallow lakes. This fall, 1,300 northernns have been trapped.

These bass and northernns are planted in lakes in Becker, Clay, Kittson, Clearwater, Mahnomen, and Ottertail Counties. They also planted 6,900 fingerling bass in Wauboose Lake this year from Pine Lake. In the past, they have planted three to five thousand bass each in Lost, Wauboose, Tamarac, and Chippewa Lakes.

The state has also planted 200,000 walleye fry in Tamarac Lake and 100,000 in Wauboose Lake this past summer.

#### H. REPTILES

Two free special use permits were issued permitting the hooking and trapping of snapping turtles this spring. One permittee caught 53 turtles weighing 1,293 pounds.

Many turtle nests were destroyed by coon or skunk on the Chippewa crossing.

During the egg laying season, painted turtles were commonly seen on roads and trails throughout the refuge.

Garter snakes, red bellied snakes, and prairie skinks were also fairly common.

#### I. DISEASE

We have no known disease problems. North Dakota State University diagnosed three of our geese which we found dead. One had died of pneumonia. Another died of dehydration (due to frozen water and packed snow in the spring). The third death was caused by "internal hemorrhage due....no trace of gun shot" (car kill).



### III. REFUGE DEVELOPMENT AND MAINTENANCE

#### A. PHYSICAL DEVELOPMENTS

APW accomplishments for the month of January and January 1 - April 30:  
(see APW documentary report 2/4/64 covering all progress through  
1/31/64)

Shaving and fuelwood produced	177 cords
Picnic tables	5
Rustic signs	20
Brush removal for regeneration and scenic drive improvement	20 acres
Tamarack posts cut, skidded, hauled to headquarters	22,000 approx.
Aspen peeled by debarker and crew	50 cords
Old cabins moved and renovated	2
Cabins dismantled, moved, ready for re-assembly	2
Land clearing at headquarters for public viewing of wildlife	15 acres
Tamarack thinning	50 acres
Red, white pine pruning	74 acres
Jackpine pruning	15 acres
Brush sheared to prepare for planting and natural seeding	150 acres

Physical accomplishments other than APW financed:

Rustic project descriptive markers	5
8'x8' signs constructed by refuge personnel from materials provided by Becker County Sportsmen Club - to be erected at 5 main highways crossing Becker County lines	5
Tops for goose nesting platforms constructed and erected	5
Surplus buildings advertised and sold	6
Trips to Grand Forks Air Base for surplus property	6
Trip to Leavenworth, Kans for surplus vehicle	1

Developments and accomplishments May 1 - August 31:

Beaver dams removed from Two Island, Flat, Egg Creek controls  
Fire line to Egg Lake tower repair  
APW signs removed and stored  
Spring clean-up around grounds, area posted, Cotton Lake picnic area  
Lost Lake, Little Flat, Tea Creacker, Egg  
Lake trails bladed several times

Picked up stray woodpiles on new Flat Lake clearing.  
Cleaned up picnic area on Round Lake (Dog Pete).  
Wrote up legend for Sioux burial, constructed and erected sign.  
Completed re-making movie, included new Tamarac goose shots.  
Burned part of brush piles on Flat Lake.  
Contractor completed 15 outdoor fireplaces; refuge personnel made grates.  
Contractor completed delivery of 10 latrines (constructed by him).  
6 latrines erected at Pine Lake Scout camping area.  
10 split stone monuments constructed by contractor.  
8 granite markers installed in stone monuments.  
Spot graveled Bruce Boulevard and Pine Lake trail.  
Installed pole gates at Mitchell Dam.  
Improved parking area at Mitchell Dam.  
Moved geese to Chippewa.  
Clover seeded on several new areas in Flat Lake goose propagation area.  
2 wooden grave markers at "old homestead" installed.  
60 cords aspen peeled.  
Drainage ditches plugged on Wayne Ruona wetland tract.  
County road 26 ditching repaired.  
Seemel and Wright driveways graveled.  
Little Flat tower steps stained.  
Balsam Lake control structure constructed by contractor.

Developments and accomplishments September 1 - December 31:

Remaining windrows and piles from Flat Lake clearing dozed and burned.  
About  $\frac{1}{2}$  of brush piles resulting from shearing on Bruce Boulevard burned.  
70 cords of "turkey" wood hauled to Osage wood shaving plant.  
41 regulation, picnic site, no camping signs constructed.  
8 picnic tables constructed, preservative and stain applied.  
 $\frac{1}{4}$  mile of fencing on wetlands.  
7 wetland tracts posted.  
2 gates installed on wetland tracts.  
10 potholes dozed on wetland tracts.  
2700 bushels grain received from wetland tracts.  
13 trips to Grand Forks Air Base for surplus property.  
30 goose nesting platforms repaired.  
13 new "raft" type goose platforms installed.  
55 cords of firewood removed from old APW timber stand improvement, hauled to headquarters for use as firewood in residences, Egg Lake cabin, and shop.  
1 public access trail to Rice Lake constructed.  
10 cords of scrap wood remaining from APW jobs along Indian Service road disposed of.  
Blasting school for training refuge personnel held; blasted 5 potholes.  
2 shelters constructed for captive geese.  
21.85 MBF of lumber sawed from logs produced the past year by APW and miscellaneous refuge operations. Much of this sawed into square timbers for massive type picnic tables - also ordinary lumber stock.  
1" and picnic table top materials hauled to local mill for planing.  
5 - 10 miles of refuge service roads bladed 4 - 5 times.  
Haul roads dozed out for welfare cutters on timber project.  
Beaver dams removed at Flat, Two Island, and other locations.

97 acres fall plowed and disced.

62 acres planted to winter cover crops of rye and winter wheat.

Refuge personnel attended a cannon net trap training session (1), pothole blasting training session (2), enforcement school (2).

Refuge personnel operated the deer checking station at the junction of Bruce Boulevard and County Road 26 throughout the regular State open season of November 7 - 11.

70 cubic yards of gravel were purchased and spread on a number of refuge road sections that required it.

Much time was spent in loading, unloading, sorting, storing, transferring surplus property obtained at Grand Forks Air Force Base.

New cropland area at Flat Lake was worked with heavy disc, stumps removed, other wood debris removed.

Picnic sites maintained weekly into waterfowl hunting season.

Removed old type racks, shelving installed in equipment shed, outbuildings.

Equipment overhauls or tune-ups on all units.

## B. PLANTINGS

### 1. Aquatics and Marsh Plants

In spite of the fact that the wild rice crop was very poor, we still managed to plant 280 pounds back into Flat Lake during August and September.

### 2. Trees and Shrubs

80,000 two-year-old (2-0) tree seedlings were planted in the spring during the period May 12 - 22.

These seedlings consisted of 50,000 red pine and 25,000 white pine which were bought from Kimberly Clark (Lake Mary Nursery, Norway, Michigan). The other 1,000 red pine, 1,000 white pine, and 3,000 white spruce were bought from the State of Minnesota (Badoura Nursery, Badoura, Minnesota) in the fall of 1963 and healed in over the winter.

Maps of the areas planted are included in the appendix. Most of the seedlings (75,000) were machine planted on areas which were sheared earlier in the spring (see Site Preparation under "Timber Removal" for description of shearing). The other 5,000 were hand planted along roadsides.

The seedlings are spaced six feet apart in rows eight feet apart.

The shearing left windrows of brush and scrub oak averaging one-half chain in width spaced about two and one-half chains apart. These windrows will be



burned or left to decay and planted to wildlife food plants as soon as the young conifers have reached a stage where brush control is no longer necessary.

On the 60 acre sheared area (see map in appendix) a  $2\frac{1}{2}$  chain strip (12 acres) on the south and west sides was also left open for wildlife plantings. This was disced in July, after the brush growth had reached its peak, and planted to buckwheat to help smother brush and fern growth, and provide wildlife food (deer fed heavily on the succulent buckwheat). This area will be planted to clover to provide wildlife food, edge, and act as a fire break for the conifer plantation. The north and east sides are bordered by roads. The windrows take up an additional 8 acres which leaves 40 acres planted with 29,000 red pine and 6,000 white pine.

Two ten acre sheared areas (see map) were planted to pines in order to break up the scrub oak brush type and provide edge and cover for wildlife. Each of these areas consist of 8 acres planted to pine and 2 acres (windrows) which will be planted to wildlife food plants.

The twenty acre sheared strip in the scrub oak-brush type, along the Indian Service Road is planted to pine for the same purpose and will be managed in the same manner.

These areas are now more productive both in wildlife and timber. These areas have had a great deal of deer use (browsing in the new brush growth) continually since they have been sheared.

3,000 trees were planted in larger openings of open stands where shearing had been done to induce natural regeneration.

5,000 trees were planted along roadways in order to enhance the aesthetic value as well as wildlife food and cover and timber production.

Survival counts made in September indicate a loss of 25 - 30 percent. This loss is primarily a result of extremely dry conditions during planting and the period following. Only .63 inches of precipitation was received between May 8th and June 5th. Also, the daily temperatures were in the 80's (a high of 93 degrees in May) and winds were strong during that period.

### 3. Upland Herbaceous Plants

None.

### 4. Cultivated Crops

Co-operative farm agreements were made with local farmers in April. Rotation plans were continued. 6 permittees took part in agricultural operations. They planted the following acreages: 26 acres of corn, 136 acres of oats, and 19 acres of barley.

Refuge operations included planting 34 acres of oats, 39 acres of buckwheat, 9 acres of sweet corn, 4 acres of field corn, and 30 acres of millet. These crops were not harvested. 9 acres of rye, 45 acres of winter wheat, and 64 acres of alfalfa were planted for waterfowl brouse. The alfalfa was planted

with the oats and the millet. In addition to this, 11.2 acres of winter wheat were harvested to obtain seed for planting.

#### C. COLLECTIONS AND RECEIPTS

50,000 red pine and 25,000 white pine two-year-old seedlings (2-0) were purchased from Kimberly Clark.

We received 280 pounds of rice as our share (7%) of the harvest. This year, only 4,146 pounds of rice were harvested, compared to over 64,000 pounds in 1963.

As mentioned previously, the poor harvest was a result of the lack of development of the seed heads. The standing crop acreage was nearly the same as last year. The poor development was attributed to early frost (August 13th) and cool damp weather during the pollination and development stage. When the season opened on August 29th, some of the rice had already dropped while some was still green.

48 boats were permitted to harvest rice on the refuge. We allowed nine permittees to use the north access to Blackbird Lake but because of the very poor crop most of them quit after the first day.

Other usually good rice-producing lakes, such as Big Flat and Little Flat were riced for only one or two days.

#### D. CONTROL OF VEGETATION

Twenty miles of refuge trails and picnic areas were sprayed in July with a 50-50 mixture of 2-4,D and 2-4-5,T at a rate of 4 pounds to the acre in 100 gallons of water to suppress brush and poison ivy growth.

One field of about 25 acres was sprayed with 2-4,D (1 pound in 22 gallons water per acre) for weed control.

#### E. PLANNED BURNING

Brush piles in the new clearing at Flat Lake, along Bruce Boulevard, and along the Indian Service Road were burned in the spring and in the fall.

#### F. FIRES

We continue to work with the Minnesota Forest Service on fire control. We shot smokes from our tower several times during critical periods but no fires occurred on the refuge during the year.

We were informed of a grass fire on the Virgil Ruona wetland tract on October 26th. By the time we got there most of the fire was out. Compaction of a grass roadway by farm equipment prevented the fire from reaching the house. A neighbor had put out a similar fire a few days previously on the south end of the tract. It is probable that both of these fires were malicious.

#### IV. RESOURCE MANAGEMENT

##### A. GRAZING

None on the refuge.

George Gard, Wetlands Manager, Fergus Falls, has the records for the W.P.A.'s that were managed from here.

##### B. HAYING

Fourteen permittees harvested 137.19 tons of wild hay and 352.51 tons of tame hay from the refuge. Receipts totaled \$829.32. Also, 20.72 tons of straw worth \$20.72 were removed.

##### C. FUR HARVEST

Permittee trappers removed 31 beaver during the spring season. During the fall, permittees trapped 33 beaver, 94 muskrats, 4 mink, and 6 weasels. The refuge received, as its share, half the rats, mink, and weasels.

Refuge personnel trapped 4 beavers in the spring. These were sent to the State.

##### D. TIMBER REMOVAL

###### Site preparation

150 acres were sheared during March and April in preparation for tree planting in May (see maps in appendix).

100 acres of this was in brush and scrub oak types and is now planted to red and white pines. The management of these areas was discussed under "Planting".

The other 50 acres sheared were brush and scrub aspen under open red pine stands. Some seedlings were planted in the larger openings but the shearing was done primarily to remove the brush and expose mineral soil to facilitate natural regeneration of the pines.

###### Co-operative agreement with Becker County Welfare

Total timber removal amounted to 174,000 board feet of saw timber and over 2,000 cords of pulp, posts, etc. for all refuge timber operations.

Relief clients cut and sold 254 cords of jackpine posts from 70 acres in our jackpine thinning operations. This provides winter deer browse and opens up the stands for more deer use, greater water yields, and much better tree growth.

They also cut nearly 800 cords of poor quality aspen to be sold for the manufacturing of wood shavings for turkey bedding. This was cut from about 100 acres. Removal of these over-mature stands provides deer browse for several years, creates edge, and timber growth is renewed.



These timber operations employ 20 - 25 men during the critical period of unemployment in the winter months. The county places a high value on these operations in that it reduces its welfare expenditures by approximately \$12,000.00. From a refuge standpoint, we are pleased to be able to help alleviate the unemployment problem and increase the productivity of the natural resources under our management.

#### Accelerated Public Works

200 cords of tamarack posts were cut as a thinning operation from 50 acres by our APW crew in January (the last month of the program).

#### Permittees

The remaining 174,000 board feet of logs and over 1,000 cords of other products were cut for the most part by 14 permittees. Four of these permittees each normally employ two to five additional men for woods work.

#### Summary

The refuge salvaged nearly 22,000 feet of logs from land clearing operations. This was sawed by a local sawmill operator with a portable mill. The lumber will be used for the construction of picnic tables, signs, and for other construction and maintenance on the refuge.

The following is the total timber removal by species:

	<u>Cords</u>	<u>M.B.F.</u>
Jackpine	382.88	40,570
Aspen	1039.13	17,620
Balsam	123.14	28,880
Spruce	145.20	3,240
Tamarack	279.20	36,760
Hardwoods	149.80	25,050
Mixed logs (refuge cut)		21,850
	<hr/>	<hr/>
	2,119.35	173,970

Using two cords per MBF this would convert to a total of 2,467.29 cords or a total of 1,233,640 board feet. This timber was removed from 400 acres.

There is always a good demand from local sawmills for sound saw logs of nearly any species. Post cutting operations seem to be involved in a buyers market. However, the Wheeler Bridge Company yard at Park Rapids gives the refuge favorable treatment but its quota is low. The pulp market is definitely a buyers market in this area. There is a demand for spruce but there is not much spruce on the refuge. The demand is a result of there being very little spruce in the area. Aspen markets are fair but the supply is very great. Balsam and jackpine markets continue to be slow.

There is, however, some recent indication that the pulp markets in this area may start to pick up due to the uncertainty of the supply which has been available in northeastern Minnesota. Buyers may want to establish a stronger market in this area in the event that they lose that supply.

#### E. COMMERCIAL FISHING

None.

#### F. OTHER USES

None.

### V. FIELD INVESTIGATION OR APPLIED RESEARCH

#### A. PROGRESS REPORTS

In April and again in October, Lauritz Krefting made checks on his herbicide browse study plots.

Paul L. Hooper and John M. Nelson completed fishery surveys of Lost and Blackbird Lakes during July 7 - 9th. Information was collected on physical-chemical features and population samples were made of each lake. The work was to determine present conditions of the sport fisheries and possibilities for improving through development of management programs. The progress report is dated October 2, 1964.

### VI. PUBLIC RELATIONS

#### A. RECREATIONAL USE

Recreational visits are continually on the increase. This year's total was 33,000 vs. 27,400 last year. The greater portion of this increase was made up of sightseers. The view of the ducks, geese, and deer on the Flat Lake fields from the tower continues to be a major attraction. On October 11th, 105 cars (420 individuals) visited refuge headquarters between 2 - 5 p.m. As many as 30 people were in the backyard of Manager Hunt's residence looking at the captive geese; a continual line of people were climbing the tower to look at the geese, ducks, and deer feeding in the fields between the tower and Flat Lake.

There is also a continuous increase in use by various groups using the refuge. Boy Scouts are the primary contributor to this increase (including groups of Canadian Scouts). In June, approximately 2,500 Boy Scouts were here for 2 - 3 days for their annual Camporee. This year the forestry students (50 students) from the University of Minnesota attending the Itasca summer session toured the refuge also.

Sport fishing is increasing. There were 16 fish houses on Tamarac Lake in January and 18 again this December. Bass fishing in Pine Lake was not as good as last year but it was fair. Wauboose and Lost Lakes are fished steadily throughout the summer. The bridges at Mitchell Dam and Chippewa are used extensively throughout the summer and some of the local people fished at these places until freeze-up (casting for northerns). Fishing accounted for over 3,000 visits.



B. REFUGE VISITORS

<u>Date</u>	<u>Name</u>	<u>Organization</u>	<u>Purpose</u>
1/8-9/64	Wm. Aultfather	R.O. Forestor	Inspect timber operations
1/8/64	Ray Miller	Red River Boy Scouts	Plan Camporee
1/13/64	Ernest Anderson	Contractor	Check shearing area
1/14/64	Milo Brolin	"	Check dragline job
1/15/64	Grady Mann	Fergus Falls AAO	Discuss wetlands
1/18-19/64	Becker Co. Sportsmen (8)	Detroit Lakes, Minn.	Cut timber
1/21/64	Grady Mann	Fergus Falls AAO	Wetlands
1/27/64	Ralph Nelson	Becker Co. Comm.	Wetlands publicity
2/1/64	Joe Wilson	Contractor	Shearing
2/11/64	Harry Basford	Former State Rep.	Discuss maple project
2/15/64	Izaak Walton club (6)	Detroit Lakes	Cutting project
2/16/64	60 local visitors	Clubs, etc.	Tour APW work
2/18/64	Ted Storck	Fargo Forum	Do refuge feature
2/19/64	John Meyer (owner)	Detroit Lakes Trib.	Do refuge editorial
2/19/64	Ralph Anderson (editor)	"	"
2/24/64	Gary Sherman	Minn. Emp. Svc., Mhd.	Employment procedures
2/26/64	Wm. Aultfather	R.O. Forester	Forestry operations
3/9/64	C.O. Lund	R.O. Prop. Mgt.	Refuge inspection
3/14/64	2 adult leaders	Red River Boy Scouts	Plan camporee
3/20/64	Ebbeson & asst.	R.O. Engineering	Boundary surveys
3/24/64	K. Wilhelm	" "	" "
4/1/64	2 adult leaders	Red River Council	Plan camporee
4/1/64	C. Alexander	Rice Lake Refuge	Property transfer
4/6/64	M. Paterson		
	D. Clason	Izaak Walton	Signs
4/6/64	Ames & Lindsay	Minn. Forest Svc.	Fire control
4/9/64	O. Christenson	Agassiz Refuge	Property transfer
4/20/64	L. Krefting,		
	H. Hansen,		
	Kee	U. of Minn.	Spray plot study
5/2/64	Mr. Carlson	Red River Boy Scouts	Camporee
5/3/64	Ted Abrahamson		Pick up road-killed deer
	W. Grahnke	State Wardens	
5/4/64	F. Carpenter		
	F. Martin		
	Trecker	R.O. Refuges	Inspection
5/7/64	D. Swendsen		
	W. Ellerbrock	GMA	Pick up surplus property
5/12/64	J. Wallis	County Welfare Dir.	Welfare project
5/12/64	J.R. Wright	R.O. Engineering	Pre-construction
	H. & M. Brolin	Contractors	conference - Balsam Lake
5/14/64	C.T. Rollings	R.O.	
	Elroy Lumb	C.O.	Soil and Moisture
5/14/64	Phil Aus	Fergus Falls AAO	Wetlands
5/18/64	George Gard	" " "	"
5/19/64	Marv. Duncan	DeSoto Refuge	Refuge operations
5/21/64	DeWitt Clason	Becker Co. Land Comm.	Land exchange
5/25/64	Brolin, Metalak,	Contractors	Balsam Lake control
	Stallman		
5/28/64	John Dahl	Upper Souris Refuge	Refuge operations

Date	Name	Organization	Purpose
6/4/64	Al Wagner	R.O. Engineering	Inspect Balsam structure
6/4/64	Ebbeson & crew	" "	Boundary survey
6/5/64	Palmer Lunde	Boy Scouts	w/Scouts
6/9/64	Mr. Webb	Geodetic Survey	Mapping
6/11/64	M. Brolin	Contractor	Construction payrolls
6/23/64	Dr. Bart	USPHS	Canoeing
6/25/64	Joe Richey	R.O. Engineering	Balsam Lake structure
6/29/64	Dan Chilton		Cabin removal
7/3/64	Alfred Ames	Minn. Forest Svc.	Radio program
7/6/64	Mr. & Mrs. Joe Johnson		Cottage purchase
7/6/64	Lt. Larry Schmit	USPHS	Inspect outhouses
7/6/64	Alfred Ames	Minn. Forest Svc.	Radio program
7/6/64	Norman Zauche	" " "	Fire plan
7/6/64	Paul Hooper & John Nelson	R.O. Fisheries	Fisheries
7/6-10/64	Wm. Aultfather	R.O.	Forestry
7/9/64	D. Umberger		
	Ray Wright	R.O. Engineering	Balsam Lake inspection
7/9/64	Jim Seeden		
	Gary Gohlstad	Manypoint scouts	See refuge activities
7/13-16/64	L.W. Krefting		
	Charles Selander		Deer exclosure check
7/14/64	H.H. Dill	R.O.	Discuss habitat and
	Clark Webster	C.O.	wood ducks
7/20/64	Forrest Carpenter	R.O.	Refuge; wetland tour
7/21/64	Forrest Carpenter	R.O.	Refuge inspection
	Noble Buell	C.O.	" "
	John Winship	R.O.	" "
	Rep. Goodling	Pennsylvania	" "
7/23/64	Grady Mann	Fergus Falls AAO	Wetlands
7/28/64	Gary Gohlstad	Manypoint scouts	Refuge projects
7/30/64	David Rose	Crab Orchard	Pick up supplies
7/30/64	Fritz Krege	Sand Lake	Deliver crane
8/5/64	K. Wilhelm & crew	R.O. Engineering	Boundary survey
8/6/64	John Sandberg	Detroit Lakes	Selection of ricers
8/7/64	Ray Miller	Fargo Boy Scouts	Use of cabin
8/10/64	Paul Krueger	Minn. Rice Comm.	Rice harvest
8/11/64	John Nelson	Boy Scouts	See refuge
8/11/64	Phil Aus	Fergus Falls AAO	Wetlands
8/17/64	Harry Moore	Fargo Forum	See geese
8/17/64	F.C. Schroeder	Detroit Lakes lawyer	Discuss ducks
8/18/64	Dave Swendsen	Fergus Falls GMA	Law enforcement
8/18/64	Kermit Dybsetter	DeSoto Refuge	Refuge operations
8/19/64	Wayne Ruona	SCS	Ottertail canoe inspection
8/20/64	Lester Stardig	Itasca-Mantrap REA	Power line easement
8/20/64	M. Paterson	Hubbel Pond	Borrow equipment
8/21/64	Ray Ostlie	GSA	Surplus property
8/28/64	Don Gray	Upper Mississippi	Duck trapping
	Bill Green	" "	" "
	Art Hawkins	R.O.	" "
8/31/64	Mr. Humphrey	U.S. Geodetic Survey	Mapping

Date	Name	Organization	Purpose
9/1/64	Bernard Granum	BIA	Arrange tour
9/2/64	James Wallis	Becker Co. Welfare	Welfare program
9/2/64	R.W. Burwell & 20	USDI - BSFW, BIA	See refuge operations
9/3/64	Charles Wright	Detroit Lakes	Locate graves
9/4/64	M. Paterson	Hubbel Pond	Rice harvest
9/7/64	Graduate student	U. of Sask.	See refuge
9/8-9/64	Karl Rasmussen	Fergus Falls AAO	Wetlands
9/14/64	Bounlieng	Gov. of Prov. of Laos	See refuge
	Tom O'Herron	State Dept.	Interpret for Bounlieng
9/23/64	Wm. Ellerbrock	GMA	Law enforcement
9/30/64	Alfred Ames	Minn. Forest Svc.	Radio program
10/7/64	Dave Swendsen	GMA	Law enforcement
10/7/64	Ted Abrahamson	State warden	" "
10/7/64	Karl Rasmussen	Fergus Falls AAO	Wetlands acquisition
10/7/64	B. Peterson	" " "	" "
10/12/64	Otto Kahle	Detroit Lakes	Take pictures of geese
	Kent Rogstad	" "	" " " "
10/13/64	Ray Miller	Fargo Boy Scouts	Winter Boy Scout camp
10/18/64	Wm. Ellerbrock	GMA	Law enforcement
	Dave Swendsen	"	" "
10/19/64	L.W. Krefting	Research	Check study plots
10/20-23/64	Wm. Aultfather	R.O.	Forestry operations
	Frank Hemmings	R.O. Engineering	Refuge buildings
	Ralph Soffield	" "	" "
10/21/64	Marvin Turner	R.O. Realty	Land exchange
10/21/64	Dave Swendsen	GMA	Law Enforcement
	Ted Abrahamson	State warden	" "
	Wm. Grahnke	" "	" "
10/27/64	Grady Mann	Fergus Falls AAO	Wetlands acquisition
10/30/64	Frank Martin	R.O.	See refuge
	Arne Belsaas	Norway - Game Cons.	" "
11/18/64	Les Stardig	Itasca-Mantrap REA	Line thru refuge
11/19/64	John Barton	Red River Boy Scouts	Summer camp
11/21-25/64	John Winship & 9 employees	Reg. 3 refuges	Blasting school
11/30-			
12/2/64	Frank Martin	R.O.	Refuge inspection
12/7/64	Milo Baldwin	Pulp buyer-Frazee	Pulp contracts

### C. REFUGE PARTICIPATION

DATE	ORGANIZATION	PICTURES	TALK	ATTENDANCE	ATTENDED OR PRESENTED BY
2/13/64	Becker Co. Sportsmen Club		x	40	Wright, Hunt Seemel
2/28/64	Indian Affairs Comm.			10	Hunt
3/9/64	Izaak Walton			12	Hunt
3/12/64	Becker Co. Sportsmen Club			40	Wright, Hunt Seemel
3/21/64	Wildlife Week Show		radio interview		Hunt
4/15/64	SCS & Co-op. agencies (re recreational resources)			9	"
4/21-23/64	N.W. Minn. Resort Assn.		x	70	"



<u>Date</u>	<u>Organization</u>	<u>Pictures</u>	<u>Talk</u>	<u>Attendance</u>	<u>Attended or Presented by</u>
7/8/64	KPRM, Park Rapids	(radio program)			Wright
9/12/64	Becker County Sportsmen Club		x	30	Hunt, Seemel
9/21/64	Quarterback Club			80	Wright
10/5/64	" "			80	Hunt
10/14/64	KPRM, Park Rapids	(radio program)			"
	Wetland Mgt.			150	Wright
10/27/64	Becker Co. Comm.			6	Wright, Seemel
11/12/64	Becker County Sportsmen Club	x	x (Seemel)	40	Hunt, Seemel
10/12/64	Izaak Walton	x	x (Seemel)		Hunt, Wright, Seemel, Hunt

#### D. HUNTING

Hunter use days increased from last year as follows:

<u>Type</u>	<u>1963</u>	<u>1964</u>
Waterfowl	2,500	3,140
Upland Game	100	100
Big Game	1,600	1,930

Opening day of waterfowl season started out as a nice warm sunny day but changed early in the afternoon into a rainy, cold, wet one. There were a total of 83 days on the refuge. Late in the afternoon, 34 hunters in 11 cars were checked and had taken 81 ducks. The 81 were comprised of 31 ringnecks, 14 scaup, 10 redheads, 10 mallards, 6 wood ducks, 6 blue wing teal, 2 ruddy, 1 pintail, and 1 canvasback. The average of 2.4 ducks per hunter was very good considering the weather.

Hunting pressure is quite light during the week but some of the local hunters (Detroit Lakes) would get some shooting before going to work in the morning and come back out after work in the afternoon. Hunting pressure on Pine Lake was especially heavy and continued throughout the season. A considerable number of ringnecks and scaup were taken - many good "shoots" in the pass between Pine and Evans Lakes.

The longer season (ended November 11) brought a bonus of scaup to the hunters this year (we had open water until late in November).

One snow goose was reported shot on Pine Lake, and one Canada was reported shot on Rice Lake. Three lesser Canadas were checked that were shot on Height of Land Lake just south of Mitchell Dam, and geese were also reported taken on Round, Blackbird, and Tamarac Lakes.

The grouse and pheasant populations are very low on the refuge and none were reported taken.

The deer season was very similar to last year. The weather was relatively warm and snow cover was lacking throughout the season.

The day by day tally of the harvest is given below:

	THROUGH STATION						Factor- People/	ENTIRE REFUGE						Total
	Adult Fawn							Adult				Fawn		
	Cars	People	M	F	M	F		Cars	Cars	People	M	F	M	
11/7	75	188	9	6	9	2	2.5	213	532	22.5	15	22.5	5	65
11/8	132	357	13	9	5	5	2.7	301	813	35.1	24.3	13.5	13.5	86.4
11/9	36	97	4	3	1	0	2.67	103	275	10.7	8.0	2.7	0	21.4
11/10	20	43	1	3	1	1	2.15	62	133	2.2	6.4	2.2	2.2	13.0
11/11	24	48	1	2	0	1	2.0	87	174	2	4	0	2	8.0
Total	733	733	28	23	16	9			1927	72.5	57.7	40.9	22.7	193.8

Fawn/Doe = 25/23 = 109/100

Fawn/Doe = 63.6/57.7 = 110/100

Buck/Doe = 44/32 = 138/100

Buck/Doe = 113.4/80.4 = 141/100

Fawn % = 34.6

Fawn % = 32.8

#### E. VIOLATIONS

As in the past, we have a good working relationship with the local State Warden, Ted Abrahamson. He handles most of our cases through J.P. court and he works with us on patrol (especially deer shining). GMA Swendsen helps us on waterfowl violations and deer shining patrols. Several of our very observant WAE's contributed significantly to our enforcement program this year also.

Violations processed as follows:

<u>Violator</u>	<u>Violation</u>	<u>Disposition</u>	<u>Warden</u>
Jay Larson 714 22nd Ave. Moorhead, Minn.	Taking ducks w/ unplugged shotgun	State court \$15.00 + \$4.00	Stillings Wright
Virgil F. Banach Lastrup, Minn.	Taking ducks w/ unplugged shotgun	State court \$15.00 = \$4.00	Stillings Wright
Dennis M. Mackner 1141 Campbell Ave. Detroit Lakes, Minn.	Transporting loaded shotgun in motorboat	State court \$25.00 + \$4.00	Wright
Tom Fisher 1515 16th Ave. So. St. Cloud, Minn.	Exceeding daily limit of wild ducks (2 counts)	State court \$15.00 + \$4.00 on each count	Seemel Hunt
Norman F. Grant 925 16th St. Moorhead, Minn.	Hunting in closed area	State court \$25.00 + \$4.00	Wright

<u>Violator</u>	<u>Violation</u>	<u>Disposition</u>	<u>Warden</u>
Fred H. Meyers Jr. Box 184 Glyndon, Minn.	Transporting uncased in motor vehicle	State court \$15.00 + \$4.00	Seemel Wright Stillings Schmidt
Leeun Werner Redwood Falls, Minn.	Possession of fire- arm in closed part of refuge	State court \$15.00 + \$4.00	Hunt
Lloyd C. Watt 1519 Adams Mpls., Minn.	Taking ducks after hours	State court \$10.00 + \$4.00	Wright Seemel
Walter Joy Detroit Lakes, Minn.	Taking ducks after hours	State court \$10.00 + \$4.00	Wright Seemel
Stanley F. Johnston 317 W. State Detroit Lakes, Minn.	Taking ducks after hours	State court \$10.00 + \$4.00	Wright Seemel
Curtis L. Eidenschink Detroit Lakes, Minn.	Rally waterfowl & assist to take	State court \$15.00 + \$4.00	Swendsen Wright Seemel Stone
Roger D. Wendt Detroit Lakes, Minn.	Rally waterfowl & assist to take	State court \$15.00 + \$4.00	Swendsen Wright Seemel Stone

#### F. SAFETY

Safety meetings are held nearly every month with all personnel attending. A complete inspection of the refuge (including residences) was made in the fall. Only one accident occurred during the year (Tom Jones Sr. cut his hand with an axe on June 17, 1964).

#### VII. ITEMS OF INTEREST

A training school on the use of ammonium nitrate in pothole blasting was conducted by John Winship and Bob Seemel on November 24 - 25, 1964. Ten refuge and wetlands personnel attended.

This report was written by Bob Seemel, with additional data provided by Bob Wright who had compiled January-April and May-August periods in rough draft form.

Report typed and assembled by Wayne Schmidt.

SIGNATURE PAGE

Submitted by:

*R. W. Hunt*

(Signature)

Robley W. Hunt  
Refuge Manager

Title

Date: February 24, 1965

Approved, Regional Office:

Date: March 12, 1965

*Frank Martin*

(Signature)

*Asst.*

Regional Refuge Supervisor



# TAMARAC NATIONAL WILDLIFE REFUGE

BECKER COUNTY, MINNESOTA

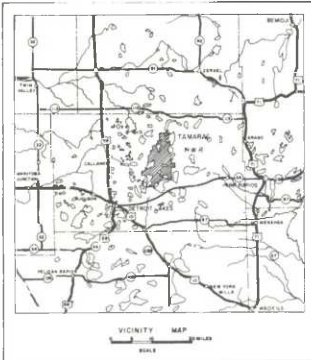
UNITED STATES  
DEPARTMENT OF THE INTERIOR  
95°45'

R40W

R39W

R39W

FISH AND WILDLIFE SERVICE  
BUREAU OF SPORT FISHERIES AND WILDLIFE  
R38W 95°30'



Tree Planting  
May 1964

(See Reverse)

T  
142  
N

T  
141  
N

47°00'

T  
141  
N

T  
140  
N

46°55'

T  
140  
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T  
139  
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142  
N

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47°00'

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T  
140  
N

46°55'

T  
140  
N

T  
139  
N

TO DETROIT LAKES  
13 MILES

HEADQUARTERS

COMPILED IN THE BRANCH OF ENGINEERING  
FROM AERIAL PHOTOGRAPHS AND SURVEYS  
BY U.S.G.S., G.L.O., AND B.S.F.W.

MINNEAPOLIS, MINNESOTA

JANUARY 1962

R40W

R39W

95°35'

R39W

R38W

95°30'

FIFTH PRINCIPAL MERIDIAN

Scale 0 40 80 160 240 320 CHAINS  
0 1/2 1 2 3 4 MILES

6	5	4	3	2	1
7	8	9	10	11	12
13	14	15	16	17	18
19	20	21	22	23	24
25	26	27	28	29	30
31	32	33	34	35	36

TOWNSHIP  
DIAGRAM

TRUE NORTH  
MAGNETIC N

MEAN  
DECLINATION  
1960

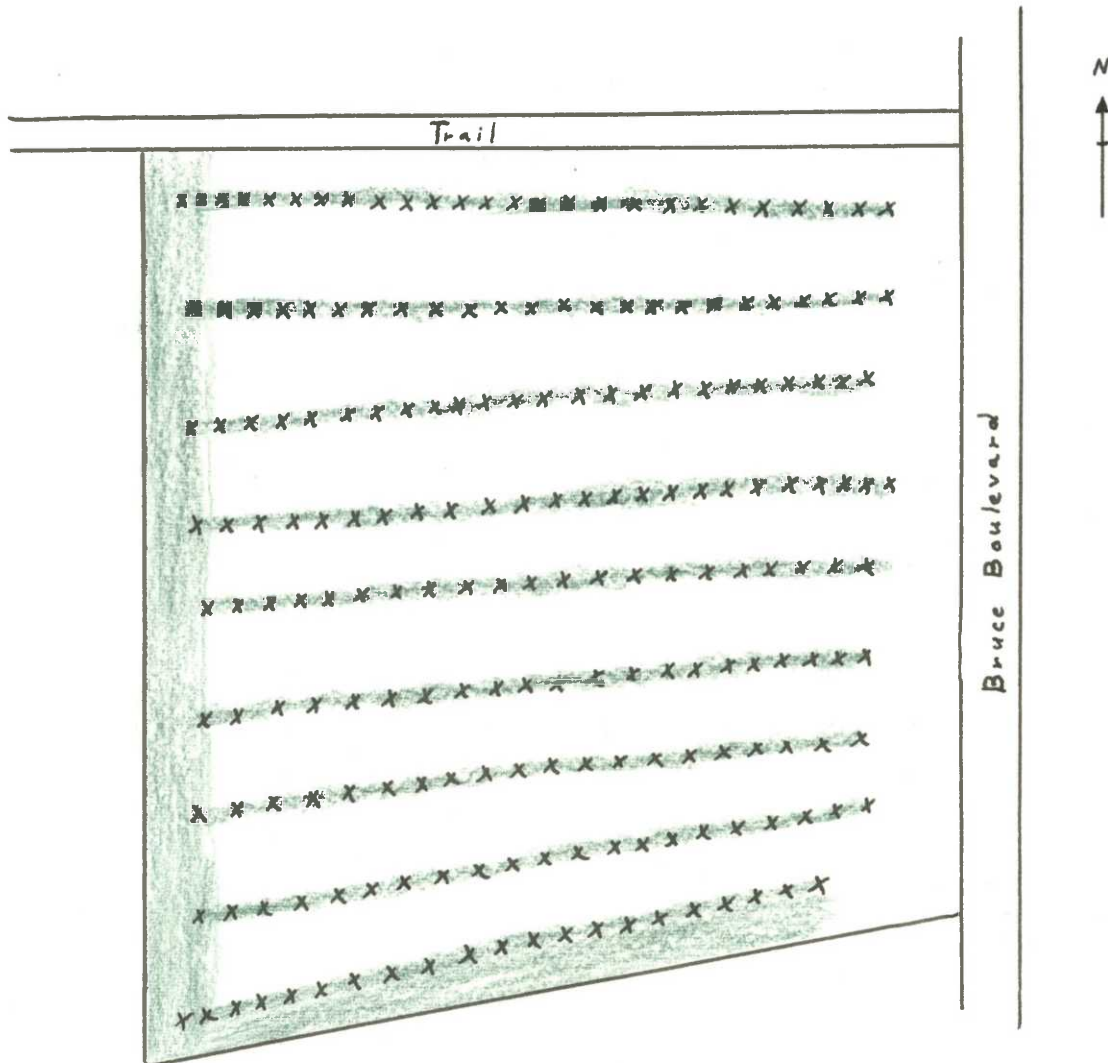


2 - 0 seedlings from Kimberly Clark, Norway, Michigan

Area

- |    |                                     |   |
|----|-------------------------------------|---|
| 1. | 29,000 Red pine<br>6,000 White pine | Machine planted on 60 acre sheared area               |
| 2. | 10,000 White pine                   | Machine planted on 10 acre sheared area               |
| 3. | 6,000 Red pine                      | Machine planted on 10 acre sheared area               |
| 4. | 16,000 Red pine<br>5,000 White pine | Machine planted on 20 acre sheared area               |
| 5. | 2,000 White pine                    | Machine planted along road on 36 acre sheared area    |
| 6. | 1,000 White pine                    | Machine planted on north edge of 14 acre sheared area |
| 7. | 4,000 Spruce                        | Hand planted along road                               |
| 8. | 1,000 White pine                    | Hand planted along edge of road and gravel pit        |

60 acre sheared area planted to conifers  
and wildlife food plants



Scale: 4" =  $\frac{1}{2}$ "

- Tree seedlings 40 acres
- Plant for wildlife food 12 acres
- XXX Windrows 8 acres

Sheared - March 1964

Trees planted - May 1964

Cultivated area disced and seeded  
to buckwheat - July 1964

Canada Goose History - 1964

- Jan. 1 180 birds in pens (including pinioned, wing-clipped, few fliers).  
16 Separated birds to be released.  
20 Sexed and banded 3-year-old geese (finished on 21st).  
30 Pulled stubs on 42 3-year-olds for release (22 females, 20 males).
- Feb. 19 Gosling No. 78 found dead in pen - N.D.S.U. autopsy - pneumonia.  
24 No. 518-06179 found dead in pen - undetermined cause.
- Mar. 1 Adult goose found dead about 100' west of road to dump - probable road kill.  
(Very late breakup - by week of March 29 - April 4, only open water in streams below structures - no open water on shorelines or potholes)
- Mar. 25  
April 10 Some geese (from which stubs were pulled in January and which had re-feathered) commenced to fly out; nesting pair killed by coyote so all were again clipped and placed inside pens.
- Mar. 29 -  
April 4 A number of observations on flocks of Canadas, snows, and blues flying north.
- April  
5 - 14 Many flocks of geese observed flying north before storm April 14th. High winds, snow on 14th, gone by 16th. Lakes frozen. Geese in pens pairing off.  
15-30 At least 6 wing-clipped mated pairs placed out in channels near headquarters.  
Many observations on migrant fliers dropping in pens - geese mating.
- May 6 16 nests in pens; indications of 20-25 mated pairs in channels.  
19 First goose nest hatched in pen - 5 goslings.  
21 15 nests still active; one goose quit incubating.  
22 2 broods w/5 goslings each hatched.  
23 4th brood hatched overnight.  
27 Goose nest on ditch bank next to pen hatched w/3 young.  
28 Brood of 5 hatched; approximately 40 young hatched to-date in pens (8 broods).  
31 Brood of 4-5 young observed; hatched out of pens near Flat Lake.
- June 3 One brood of goslings in pothole near Flat Lake; new pair in newly cleared area.  
7 Brood of goslings in level ditch east of headquarters.  
8 Chased in brood of 6 (hatched outside of pen); observed another brood of 5 by office.
- July 10 Clipped 1 and 2-year-old geese.  
13 Obtained delivery of 48 goslings and 1 mated pair from Strutz Game Farm and wing-clipped on arrival.  
16 11 geese (some combination of 1 - 2 broods) on Little Flat.

August Very little flying around due to molt and young being incapable of flight.

Sept. 17 130 fliers in headquarters area - believed mostly young now on wing.

Sept. 17-  
Oct. 13 Fliers increased in number to 400 Canada geese - flocks of 20 - 100 flushed from Chippewa grain fields, and morning and evening flights from Flat Lake grain fields to fields east of pens; 100 blues and snows in.

Oct. 13 400 Canadas and 6,000 mallards flushed from Flat Lake grain fields; also flushed 15 Canadas from pens along with 80-100 wood ducks.

14 Flock of 70 Canadas with 2,000 mallards south of headquarters; one group of 6 in alfalfa field south of entrance gate; flocks of 20, 30, 15, 5 in from Flat Lake and landed in fields east of pens; 100 flushed from fields by eagle.

Oct. 15-  
19 Morning and evening flights of 150 Canadas between Flat and Chippewa grain fields; 100 using new fields south of headquarters.

Oct. 20-  
25 180 in Flat Lake fields; unknown number in pens; eagles have "spooked" them from usual feeding areas; geese feeding regularly in Dutch white clover fields on newly cleared hill east of pens; family groups of 4, 5, 6, 7 still flying intact.

Oct. 26-  
31 200 in Flat Lake fields, and flushed 95 from pens; during this period stopped using clover and commenced on winter wheat south of headquarters.

Nov. 1-14 Still 450 using Flat Lake fields (winter wheat, buckwheat, fall rye, corn); they are still flying twice daily to winter wheat south of headquarters.

150 were flushed from rotary cut corn fields in Chippewa fields; also flights to Melanders on Flat Lake.

Have received reports and a few bands of geese killed by hunters but does not appear to be serious.

Nov. 17-  
18 Lakes frozen over - 250 geese left for south leaving approximately 200 geese in pens, of which we estimate 60-70 fliers (some with and some without red bands).

Nov. 19-  
24 A few warm days, but nights below freezing; there are still groups of 5-30 leaving pens for short flights - as yet no snow covering but all marshes and lakes with 3 - 5 inches solid ice.



Dec. 31     Approximately 215 birds in pens

Note: A careful check on Feb. 10, 1965 revealed:

213 total including:

52 fliers with red bands  
8 fliers without red bands  
48 clipped and stubs pulled in January  
15 pinioned birds  
89 one and two-year-old birds

A recap of remaining birds indicated that about 150 were flying before fall, 1964 migration - there are 61 fliers remaining as of February 10, 1965 - an estimated 90 were raised on refuge, which went south during migration in late fall.

PHOTOGRAPHS



These signs were constructed by refuge employee Gil Wicker with materials provided by Becker County Sportsmen Club, erected by club members at 5 locations on main highways entering Becker County.

162M

Wooden markers constructed for marking graves of early settlers burials made in 1912.

165M





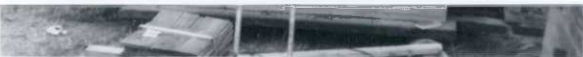
A class of 50 U. of Minn.  
forestry students w/Prof.  
Hansen & Brown. Toured refuge  
and given talks by Seemel  
& Hunt.

1691

Scenic drive on portion of the Indian  
Service Road. The wood marker describes  
location and historic data on a trail  
constructed in 1868.

1691

W 691





Hansen & Brown. Toured refuge

Picnicers using the fireplaces  
& picnic tables at the public  
access on Cotton Lake.

165M

Distinguished refuge visitors, Chourmay  
Buonleng (Governor of province of Laos)  
and interpreter Tom O'Herron inspecting  
wild rice beds on Chippewa Lake.

169M





Hansen & Brown. Toured refuge

Picnicers using the fireplaces  
& picnic tables at the public

A group of horseback riders watering  
their mounts at the boat landing on  
the Cotton Lake public access.

1691

Distinguished refuge visitors, Chourmay  
Buonleng (Governor of province of Laos)  
and interpreter Tom O'Hannon inspecting

1964 wild rice crop was only  
4,000 lbs. of harvested rice -  
compared to yearly average of  
50,000 lbs. Rice harvest  
limited to members of Chippewa  
tribe. Two of the usual  
46 - 50 rice boats on refuge  
lake.

1691





Hansen & Brown. Toured refuge

Picnicers using the fireplaces  
& picnic tables at the public

A group of horseback riders watering  
their mounts at the boat landing on  
the Cotton Lake public access.

15 fireplaces for picnic sites were  
constructed during the summer.

164M

Distinguished refuge visitors, Chourmay  
Buonleng (Governor of province of Laos)  
and interpreter Tom O'Hannon inspecting

1964 wild rice crop was only  
4,000 lbs. of harvested rice -

Cluster of pink & white lady-  
slipper, the Minnesota State  
Flower, growing on roadside to  
Herfindahl tract. One Tamarac  
swamp containing literally  
hundreds of plants has been  
located - 3/4 mile west of  
Bruce Boulevard on Ogemash trail.





Hansen & Brown. Toured refuge

Picnicers using the fireplaces  
& picnic tables at the public

A group of horseback riders watering  
their mounts at the boat landing on  
the Cotton Lake public access.

15 fireplaces for picnic sites were  
constructed during the summer.

Eight of these stone monuments  
erected at sites of historic  
interest - summer 1964. In the  
picture, stone mason, Anton  
Syverson (early settler) H.  
Colmer & F. Long (Becker County  
Historical Society) and  
stone mason Asa Marcy.

165M

Distinguished refuge visitors, Chourmay  
Buonleng (Governor of province of Laos)  
and interpreter Tom O'Hannon inspecting

1964 wild rice crop was only  
4,000 lbs. of harvested rice -

Cluster of pink & white lady-  
slipper, the Minnesota State  
Flower, growing on roadside to

Balsam Lake Control - R.O. engineer  
checking on re-inforcing rod placement.

161M  
R.O. Engineer checking  
on reinforcing rod placement

Balsam Lake Control



Hansen & Brown. Toured refuge

Picnicers using the fireplaces  
& picnic tables at the public

A group of horseback riders watering  
their mounts at the boat landing on  
the Cotton Lake public access.

15 fireplaces for picnic sites were  
constructed during the summer.

Eight of these stone monuments  
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interest - summer 1964. In the  
Vandalism at Cotton Lake picnic site.

ME 91

Distinguished refuge visitors, Chourmay  
Buonleng (Governor of province of Laos)  
and interpreter Tom O'Hannon inspecting

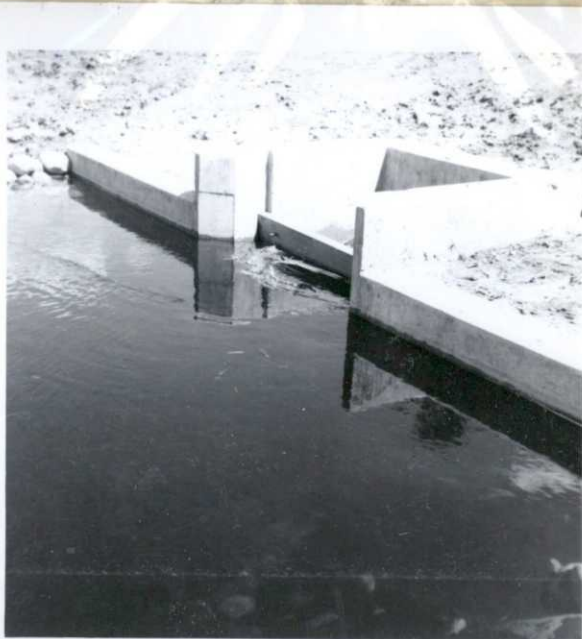
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Flower, growing on roadside to

Balsam Lake Control - R.O. engineer  
checking on re-inforcing rod placement.

Balsam Lake Control - pouring forms -  
contract by Brolin Co. - June 1964

ME 91





Hansen & Brown. Toured refuge

Picnicers using the fireplaces  
& picnic tables at the public

A group of horseback riders watering  
their mounts at the boat landing on  
the Cotton Lake public access.

15 fireplaces for picnic sites were  
constructed during the summer.

Eight of these stone monuments  
erected at sites of historic  
interest - summer 1964. In the  
Vandalism at Cotton Lake picnic site.

Refuge employee removing siding  
from an original homestead log  
cabin built in 1874. This cabin  
is included in a group of original  
buildings being preserved for  
historic interest.

162M

Distinguished refuge visitors, Chourmay  
Buonleng (Governor of province of Laos)  
and interpreter Tom O'Hennen inspecting

1964 wild rice crop was only  
4,000 lbs. of harvested rice -

Cluster of pink & white lady-  
slipper, the Minnesota State  
Flower, growing on roadside to

Balsam Lake Control - R.O. engineer  
checking on re-inforcing rod placement.

Balsam Lake Control - pouring forms -  
contract by Brolin Co. - June 1964

Balsam Lake Control - completed structure  
to facilitate water level control and  
thus develop and restore wild rice in  
lakes.

162M





Hansen & Brown. Toured refuge  
and picnic tables at the public

Picnicers using the fireplaces  
& picnic tables at the public

A group of horseback riders watering  
their mounts at the boat landing on  
the Cotton Lake public access.

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Refuge employee removing siding  
from an original homestead log  
cabin built in 1874. This cabin

Public access on Wauboose  
Lake in use by fishermen  
and picnicians.

165M

Distinguished refuge visitors, Chourmay  
Buonleng (Governor of province of Laos)  
and interpreter Tom O'Hannon inspecting

1964 wild rice crop was only  
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Balsam Lake Control - pouring forms -  
contract by Brolin Co. - June 1964

Balsam Lake Control - completed structure  
to facilitate water level control and  
thus develop and restore wild rice in

New boundary fencing along  
southeast corner of refuge -  
part of land dispute with refuge  
neighbor, Bergstrom.

New boundary fence  
at S.E. corner of refuge  
part of land dispute with  
neighbor Bergstrom

165M





Hansen & Brown. Toured refuge

Picnicers using the fireplaces  
& picnic tables at the public

A group of horseback riders watering  
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from an original homestead log  
cabin built in 1874. This cabin

Public access on Wauboose  
Lake in use by fishermen  
and picnics.

Refuge foreman Gil Wicker with  
evidence of predator control -  
with Carl Burrell of Agassiz  
Refuge, who spent 2 weeks in-  
structing Tamarac personnel.

Intensive control in goose  
propagation is a necessity.

Distinguished refuge visitors, Chourmay  
Buonleng (Governor of province of Laos)  
and interpreter Tom O'Hannon inspecting

1964 wild rice crop was only  
4,000 lbs. of harvested rice -

Cluster of pink & white lady-  
slipper, the Minnesota State  
Flower, growing on roadside to

Balsam Lake Control - R.O. engineer  
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Balsam Lake Control - pouring forms -  
contract by Brolin Co. - June 1964

Balsam Lake Control - completed structure  
to facilitate water level control and  
thus develop and restore wild rice in

New boundary fencing along  
southeast corner of refuge -

Goose pen - Artificial island  
in captive goose pen. Nesting  
goose beside the tire placed  
for nesting.

162M





Goose pen - Nesting goose  
using platform. Clipped &  
pinioned geese use the ramp.  
Roof provides protection against  
owls, eagles, and crows.

162M

Taken from hill, just outside  
northeast corner of pen. It was  
entirely timbered, cleared in  
winter 1964, planted to Dutch  
white clover. Used extensively by  
pairs w/broods, local fliers,  
migrants.

161M



Goose pen - Nesting geese. 3 successive nesting seasons, the raised & roofed platforms were chosen by 4 pairs of nesting geese for nest locations.

162M

One of 2 local tractor owners employed for pulling refuge tree planters. These planters will plant about 3,000 seedlings per day - in moderately rough terrain

165M





Goose pen - showing site on  
bank of channel selected for  
goose nest. The goose is off  
and has covered the eggs.

162M

Machine planting of red and  
white pine in areas "sheared"  
in late winter 1964. Some  
natural regeneration is obtained  
from lone "seed" trees -  
especially in "disturbed" soil

164M



Goose pen - dirt mound used  
by nesting geese - Canada  
geese on Tamarac have used:  
dirt mounds, raised platforms,  
tires, platforms w/andw/●  
roosts, ditch banks, hay bales,  
alongside hay bales, bare grou

W  
1  
9

Mature white pine seed trees  
girdled by porcupine and doomed  
for certain. Porcupines are very  
destructive to pines during the  
winter months. They are system-  
atically removed when discovered  
in pine areas.

W  
1  
9





Goose pen - Goslings hatched on these raised platforms are supposed to seek similar type platforms when they attain maturity. These platforms (w/o ramps) should be predator-proof.

162M

Before - Shearing "off-site" aspen and brush growths along Bruce Boulevard - note scattered jack pine.

Area 1

164M



Channel and nesting mound  
construction completed in 1964  
immediate to observation tower  
& immediately available for  
mated geese released from the  
pens.

162M

After - showing same area after  
shearing during late winter.  
These areas sheared to prepare  
for planting to red & white pine

Area 1

169M





Goose pen - showing partitioned  
pens at Hdqrs. Nesting platforms  
(4 each) have been used for 3  
successive years with better  
than 50% hatching success.

1

1691

Area 2 - Before - showing area  
along Bruce Boulevard, growing  
scrub aspen, oak, and brush.

1691



Buckwheat planted in early  
July 1964 on 20 acre area  
cleared in winter 1964.  
Heavily used by 5,000 mallards.  
400 geese, 30 deer, and raccoons  
fall 1964.

W 591

Area 2 - After - same area after  
shearing in late winter to  
prepare for reforestation to  
red and white pine. Also, in  
this area a planting of buck-  
wheat was made to improve use  
for upland and big game.

W 591





Goose pen - showing one of the  
9 broods and 40+ goslings raised  
in the pens in 1964.

169M

Distance view of areas  
"sheared" in preparation for  
reforestation (1964). New  
sprout growth (summer 1964)  
has attracted numerous deer  
for fall and winter feeding in  
these areas.

165M





Goose pen - showing incubating  
goose on another type of nesting  
platform. Several pair of geese  
(fliers) nested inside the pens,  
even though capable of flight.

164M

A friendly warning erected in  
vicinity of a newly acquired  
Becker County wetland tract.

W191



VIP inspection, showing group  
returning to plane after  
touring refuge, Messrs. Buell,  
Carpenter, U.S. Rep. Goodling,  
& Winship, accompanied by  
Wright & Seemel of refuge staff.

The charge of ammonium nitrate  
is in plastic bags and placed  
just below the water in a hole  
about two feet deep.

9386





Vandalism at the Cotton Lake  
picnic site.

W 491

This shot was taken from about  
900' away. Chunks of frozen muck  
and debris were thrown into the  
air well over 300'.

W 836



Refuge Operator Dave Annette  
working on parking area at  
Mitchell Dam picnic site.  
Development of new public access,  
picnic sites, & other recreation  
all opportunity completed this yr.

162M

An "after" shot showing half  
the hole produced by four  
25 lb. charges.

938M





Refuge Cat w/scrapper getting  
fill for road repair. The  
excavation will hold sufficient  
water to attract nesting  
waterfowl in early spring.

161M

The frost was about a foot  
thick. These large chunks will  
act as loafing mounds at the  
edges of the holes.

936M



Refuge Manager Hunt "pins" Jim  
Stillings on completion of his  
30 years of Federal employment.

938M

This hole was shot with four  
50 lb. charges. The larger  
charges blew the thick frost  
layer farther away from the  
edge of the hole.

938M





Refuge personnel held a  
recognition program for Jim  
Stillings "30 year" pin  
ceremony. Wayne Schmidt shakes  
hands with the honored employee.

Local papers sent a reporter  
and published an article.

1

930M

Pothole created by use of  
blasting w/ammonium nitrate.  
This size pothole utilized by  
mated waterfowl extensively.  
Members of training school 11-64

161M

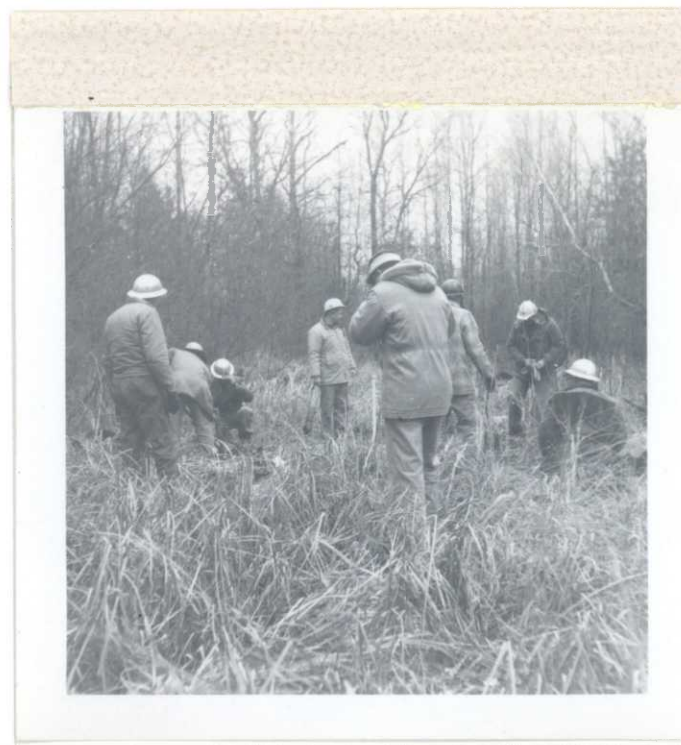


The Becker County Sportsmen Club invited area conservation clubs to inspect the projects complete on the refuge by APW program. The club provided lunch.

938M

Approximately 50 members of six area clubs completed a tour of APW projects stressing forest management operations.

938M





A "before" shot showing charges being placed in the holes. The roll in foreground is primacord used to set off all charges instantaneously w/one cap.

938M

Training school for blasting potholes w/ammonium nitrate. Attended by refuge & several State employees - conducted by John Winship & Bob Seemel.  
Nov. 1964

163M



APW - Jan. 1964 - Early settler  
markers constructed of refuge  
timbers, and by refuge personnel.  
A facet of "Forest Recreation.

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APW - Jan. 1964. Explanatory  
markers (refuge projects)  
& constructed of refuge timber;  
by refuge personnel.

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APW - Jan. 1964. 4 local  
residents were provided  
trucking during project -  
hauling wood products.

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APW - Jan. 1964. Cleared old  
settler's trail ( $\frac{1}{4}$  mile) to  
Mills homestead. Granite  
marker erected in original  
homestead clearing and early

U.S. Post Office site.

4 2 1



Refuge maintenanceman w/wild  
dog killed on refuge trailing  
deer w/another dog. Jan. 1964.

4 2 1





Members of Becker County  
Sportsmen Club & local Izaak  
Walton chapter cut balsam bolts  
to make money for club  
treasuries.

4 5 0



APW - Jan. 1964. 2 local  
residents w/teams were  
provided employment through  
project. Over 20,000 posts  
produced on this tamarack

thinning project.

4 2 1





APW ~ Jan. 1964. Land clearing  
south shore Flat Lake. This  
same area was planted to buck-  
wheat & sweet corn & attracted  
400+ geese (Canada), 5,000

mallards & 30+ deer - in the  
fields at the same time.

4 2 1



APW - Jan. 1964. Pruning jack  
pine. Removal of lateral  
branches in first 15' increases  
sawlog values up to 50%.

4 2 1



APW - Jan. 1964. Refuge dozer  
used to clear haul roads for  
cutters. Dozers are kept busy  
during period of Dec. - March  
to develop access for timber  
operations.

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